

Student Name:

Student id:

Sect:

Serial#:

University of Bahrain
College of Information Technology
Department of Computer Science

ITCS241: Assembly Programming

Assembly Fundamentals

Quiz #2

Study carefully the following definitions and answer all questions below.

ME SWORD 3AE4H, 0C3D6H, -9, 397EH, 2659H, 7 dup(4), 703AH, 98DFH, -8
YOU SBYTE 100, -7
WE WORD 2C9AH

- 1) The error with the statement `mov ME[6], ME[2]` is 2 MEM OPERANDS.
- 2) Give ONE instruction that replaces the -9 by 7E4FH MOV ME[4], 7E4FH
- 3) The instruction: `mov bx, ME+6` stores the value 39 7E H in BX register.
- 4) The instruction: `mov ah, YOU-5` stores the value 3A H in BX register.
- 5) The 2 types of assembly statements are: Instructions and Directives.
- 6) Assembly statements used to provide information are called Directives.
- 7) The range of values that fit in `sdword` location is -2^{31} to $+2^{31}-1$.
- 8) The directive that defines an array UUU consisting of 256 elements initialized with "&" is
UUU byte 256 dup('&')
- 9) The number of bytes occupied by "`H dword 20, 2 dup(1, 2, 4, 2 dup(33, 44, 55), 99)`" is $21 \times 4 = 84$
- 10) Draw the memory map for the statements: YOU and WE.

Address (Name)	Contents (HEX)
YOU	64
	F9
WE	9A
	2C

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Section #:1

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Quiz #2: Assembly Language Fundamentals

- 1) The 2 types of statement labels are: code label and data label.
- 2) The directive that defines a constant **aou** whose value is "evrika" is aou equ 'evrika'
- 3) The directive that defines an array **FFF** to store 20 student ids is
FFF word 20 dup(?)
- 4) The number of bytes occupied by "F word 8, 3 dup(1, 2, 4, 4 dup(7, 55), 9)" is 74 bytes

Given the array: **FF SWORD 500 DUP (9C4EH, 3F0AH)**, answer the following questions:

- 5) Give ONE statement that causes the assembler to store the number of items in the array FF in a constant named **FF_L** FF_L equ length of FF
- 6) The a statement that stores in CX the size of one item in array FF is mov cx, type FF
- 7) Write a sequence of instructions to increment every byte in array FF

3

```
mov ecx, 1000  
mov si, offset FF  
L:  
inc esi  
inc si  
loop L
```

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- 11) The 2 types of assembly statements are: Instructions and Directives.
- 12) The directive that defines a constant `mew` whose value is 365 is `mew equ 365`.
- 13) The directive that defines an array `RRR` consisting of 33 strings initialized with "ITCS241" is
`RRR byte 33 dup("ITCS241")`.
- 14) The number of bytes occupied by "`H dword 8, 3 dup(1, 2, 4, 2 dup(7, 55), 9)`" is 2524 = 100.

Given the array: `GG WORD 1024 DUP (3A4BH, 9F2CH)`, answer the following questions:

- 15) Give ONE statement that causes the assembler to store the number of bytes occupied by the array `GG` in a constant named `GG_S` `EQU $ - GG`.
- 16) The statement that stores in `AH` the number of items in array `GG` is `MOV AH, LENGTHOF GG`.
- 17) Write a sequence of instructions to subtract 55 from every byte in array `GG`.

```
MOV CX, SIZEOF GG
MOV SI, OFFSET GG
NEXT: SUB byte PTR [ESI], 55
INC SI
LOOP NEXT
```

Handwritten notes:
MOV ECX, length
mov esi, offset
LO: Sub byte ptr [esi]
add esi, 1
Loop LO